

neutral point and an auxiliary correcting input potential of the same frequency as that of the normal input applied between any pair of strips is derived from the probe output and applied at the neutral point of the circuit associated with said pair. In one embodiment of this nature each normal input is applied between a pair of strips by a push-pull input circuit which includes, connected between the strips of the pair, two equal series resistances the junction point of which provides the neutral point.

In the embodiment shown in FIGURE 2 the normal input of frequency f_1 is applied to the strip X1 through a parallel tuned rejector circuit 1 tuned to reject the frequency f_2 and the normal input of frequency f_2 is applied to the strip Y1 through a similar rejector circuit 2 tuned to reject f_1 . The strips X2 and Y2 are earthed the normal inputs being thus "one sided" or unbalanced. Output from the probe P is amplified by two amplifiers 3 and 4 of which the former selectively amplifies component signals of frequency f_1 and the latter selectively amplifies component signals of frequency f_2 . Output signals of the two different frequencies are taken off for utilisation at terminals 5 and 6. Auxiliary correcting input signals of frequency f_1 are applied from the output of amplifier 3 through a rejector circuit 7 tuned to reject f_2 to the strip Y1 and, similarly, auxiliary correcting input signals of frequency f_2 from the output of amplifier 4 are superimposed upon strip X1 through a rejector circuit 8 tuned to reject f_1 . In order to facilitate adjustment to attain optimum correction of field distortion the amplifiers 3 and 4 are preferably of adjustable gain.

Although FIGURE 2 shows an unbalanced or "single sided" arrangement obviously the two normal inputs could be applied to the strips of the two pairs in push-pull and the auxiliary correcting inputs applies to the strips of the appropriate pairs in phase.

In the embodiment shown in FIGURE 3 the two normal inputs f_1 and f_2 are applied between the strips of the pairs X1 and X2 in push-pull by means of input transformers 9 and 10 having secondaries with earthed centre taps. Across each secondary is a circuit which comprises equal series resistances 11 or 12 and provides a neutral point 13 or 14 between them. Output from the probe P at the component frequency f_1 is selectively amplified by the amplifier 3, preferably of adjustable gain, and superimposed at the neutral point 13. Similarly probe output at the component frequency f_2 is selectively amplified by amplifier 4, also preferably of adjustable gain, and superimposed at the neutral point 14. 15 and 16 are rejector circuits, which may be provided if desired, and are respectively tuned to reject the frequencies f_2 and f_1 .

In the embodiment of FIGURE 3 the total voltage across any pair of strips is constant but their voltages are varied with respect to earth by the negative feed back voltage (the auxiliary correcting input) applied at the appropriate neutral point. Thus the voltage of frequency f_1 between the strips X1, X2 is constant but their voltages at this frequency with respect to earth are varied by the auxiliary correcting input applied at 13, the other strips Y1 and Y2 being at earth potential so far as the frequency f_1 is concerned. The feedback is adjusted to such value that a null or zero point occurs (as respects f_1) at the position of the probe. In similar manner the feedback to point 14 produces a null or zero point as respects frequency f_2 at the position of the probe.

I claim:

1. An arrangement including an electrical position resolver having a surface provided with a resistive layer to which connection is made by means of two pairs of parallel strips, the strips of one pair being perpendicular to the strips of the other pair, means for applying a first input frequency between the strips of one pair of said strips, means for applying a second input frequency between the strips of the other pair of said strips, a pick-up probe, movable over said surface to pick up signals compounded of said first and second frequencies in proportions dependent upon the position of said probe on the surface, said probe being connected to means for separating out said first and said second frequencies from the output of said probe, said arrangement also including means for applying a portion of a signal at said first frequency from said frequency separating means to said other pair of strips as a first correcting signal and means for applying a portion of a signal at said second frequency from said frequency separating means to said one pair of strips as a second correcting signal to compensate for errors in the position information presented by the signals picked up by said probe which would otherwise be caused by distortion of the fields produced by the input signals of said first and second frequencies applied to said two pairs of strips.

2. An arrangement as claimed in claim 1 wherein each of the inputs of different frequencies is applied to a respective one of said pairs of perpendicular strips of the resolver through a separate rejector circuit tuned to reject the other frequency.

3. An arrangement as claimed in claim 2 wherein each of said first and second correcting signals is applied to a respective one of said pairs of perpendicular strips of the resolver through a further separate rejector circuit tuned to reject the signal frequency applied to the corresponding one of said pairs of perpendicular strips.

4. An arrangement as claimed in claim 1 wherein each of the first and second inputs is applied in push-pull between the strips of a respective one of the two pairs of strips by means of a circuit which includes a neutral point and an input connection for a respective one of said first and second correcting signals coupled to said neutral point.

5. An arrangement as claimed in claim 4 wherein each of said first and second inputs is applied between a pair of strips by a push-pull input circuit which includes, connected between the strips of the pair, two equal series resistances the junction point of which provides the neutral point.

References Cited

UNITED STATES PATENTS

3,005,050	10/1961	Koenig	178—20
3,037,123	5/1962	Lewis et al.	235—198
3,066,251	11/1962	Losher	235—197
3,302,194	1/1967	Green et al.	178—18 X

JOHN W. CALDWELL, Primary Examiner

M. M. CURTIS, Examiner

U.S. Cl. X.R.

178—18, 69